REMARKS

In the Office Action mailed September 25, 2002, claims 9-12 and 18-20 were objected to under 37 CFR 1.75; claims 1-20 were rejected under 35 USC 112, second paragraph, as being indefinite; claims 1-12 were rejected under 35 USC 102(e) as being anticipated by Stayt, Jr., et al. (U.S. Patent No. 6,389,046); claim 7 was rejected under 35 USC 103(a) as being unpatentable over Stayt, Jr., et al.; and claims 13-20 were rejected under 35 USC 103(a) as being unpatentable over Stayt, Jr., et al., as applied to claims 1-12, and further in view of Eda et al. (U.S. Patent No. 5,438,579).

The foregoing objections and rejections are respectfully traversed.

New claims 21-24 are added. Claims 1-24 are pending in the application; claims 1, 9, 13, 18, and 21-24 are independent claims.

New Claims 21-24

New claims 21-24 are added, providing alternate recitations of the present invention. Care has been exercised to avoid the introduction of new matter.

Claim Objections under 37 C.F.R. 1.75

The Examiner's objections to claims 9, 10, 11, 12, 18, 19, and 20 as being substantial duplicates of claims 1, 3, 4, 8, 13, 15, and 16, respectively, are respectfully traversed. Claims 9, 10, 11, 12, 18, 19, and 20 each recite a "wavelength control device", whereas claims 1, 3, 4, 8, 13, 15, and 16 each recite a "light source".

It is respectfully submitted that the foregoing claims meet the requirements of 37 CFR 1.75 (b):

> More than one claim may be presented provided they differ substantially from each other and are not unduly multiplied

and MPEP 706.03(k) ("...court decisions have confirmed applicant's right to restate (i.e., by plural claiming) the invention in a reasonable number of ways. Indeed a mere difference in scope between claims has been held to be enough" (emphasis added)).

Withdrawal of the objections to claims 9, 10, 11, 12, 18, 19, and 20 is respectfully requested.

Claim Rejections under 35 U.S.C. 112(2)

Claims 1 and 9 are amended, taking the Examiner's comments into consideration. Withdrawal of the rejections of claims 1, 2-8 (depending from claim 1), 9, and 10-12 (depending from claim 9) is respectfully requested.

The Examiner's rejections of claims 13 (and dependent claims 14-17) and 18 (and dependent claims 19-20) under 35 U.S.C. 112(2) as having the word "means" preceded by the word(s) "for compensating a detected temperature", and thus not being able to determined the equivalents under 35 U.S.C. 112(6), are respectfully traversed. The word "means" in each of claims 13 and 18 is followed by the functional word(s) "for compensating a detected temperature", not preceded by same as the Examiner asserts in the Action. Withdrawal of the foregoing rejections of claims 13-20 is respectfully requested.

Claim Rejections under 35 USC 102/103

Stayt discloses a method and apparatus to sense laser array power and wavelength and reduce drift for wavelength selection and stabilization.

Eda discloses a wavelength stabilizing apparatus.

The combination of Stayt in view of Eda is an apparatus to sense laser array power and wavelength and reduce drift for wavelength selection and stabilization, and to stablize the wavelength.

However, neither Stayt nor Eda, either alone or in combination, discloses or suggests the features recited in each of independent claims 1, 9, 13, 18, and 21-24 of the present application (using the recitation of claim 1 as an example) "a plurality of laser diodes comprising a reference laser diode" and "compensating temperature control conditions for said laser diodes other than the reference laser diode selected from said plurality of laser diodes, according to a change in temperature control condition for said reference laser diode, wherein the reference laser diode is normally operative only at a lower temperature".

Therefore, the present invention makes wavelength control easy.

Moreover, dependent claims 2-8, 10-12, 14-17, 19, and 20 recite patentably distinguishing features of their own. For example, claim 2/1 recites ", wherein the oscillation wavelengths of said plurality of laser diodes are different from each other, and said plurality of laser diodes are selectively driven".

Withdrawal of the foregoing rejections and allowance of claims 1-24 is respectfully requested.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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Date: Dec. 26, 2002

By: _____

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please AMEND the following claims:

1. (ONCE AMENDED) A light source device comprising:

a plurality of laser diodes comprising a reference laser diode;

a temperature sensor provided in the vicinity of said plurality of laser diodes;

a control loop for controlling the temperatures of said plurality of laser diodes according to an output from said temperature sensor to thereby control the oscillation wavelengths of said plurality of laser diodes; and

means for compensating temperature control conditions for said laser diodes other than [a] the reference laser diode selected from said plurality of laser diodes, according to a change in temperature control condition for said reference laser diode, wherein the reference laser diode is normally operative only at a lower temperature.

2. (AS ORIGINAL) A light source device according to claim 1, wherein the oscillation wavelengths of said plurality of laser diodes are different from each other, and said plurality of laser diodes are selectively driven.

3. (AS ORIGINAL) A light source device according to claim 1, wherein said temperature sensor comprises a thermistor.

4. (AS ORIGINAL) A light source device according to claim 1, wherein said change in said temperature control condition for said reference laser diode comprises a result of comparison between an initial set temperature and a latest set temperature, whereby a deterioration of said temperature sensor reflects the compensation of said temperature control conditions of said laser diodes other than said reference laser diode.

5. (AS ORIGINAL) A light source device according to claim 4, wherein said reference laser diode is driven so as to become lower in temperature than said laser diodes other than said reference laser diode.

6. (AS ORIGINAL) A light source device according to claim 1, wherein said plurality of laser diodes are arranged in an array, and said reference laser diode is positioned at an end

of said array.

7. (AS ORIGINAL) A light source device according to claim 1, wherein said plurality of laser diodes are arranged in an array, and said temperature sensor is positioned near the center of said array.

8. (AS ORIGINAL) A light source device according to claim 1, wherein said control loop comprises an optical filter optically coupled to said plurality of laser diodes and having a transmittance substantially periodically changing with wavelength, and means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

9. (ONCE AMENDED) A wavelength control device for a light source device having a plurality of laser diodes including a reference laser diode, comprising:

a temperature sensor provided in the vicinity of said plurality of laser diodes;

a control loop for controlling the temperatures of said plurality of laser diodes according to an output from said temperature sensor to thereby control the oscillation wavelengths of said plurality of laser diodes; and

means for compensating temperature control conditions for said laser diodes other than [a] the reference laser diode selected from said plurality of laser diodes, according to a change in temperature control condition for said reference laser diode wherein the reference laser diode is normally operative only at a lower temperature.

10. (AS ORIGINAL) A wavelength control device according to claim 9, wherein said temperature sensor comprises a thermistor.

11. (AS ORIGINAL) A wavelength control device according to claim 9, wherein said change in said temperature control condition for said reference laser diode comprises a result of comparison between an initial set temperature and a latest set temperature, whereby a deterioration of said temperature sensor reflects the compensation of said temperature control conditions of said laser diodes other than said reference laser diode.

12. (AS ORIGINAL) A wavelength control device according to claim 9, wherein said control loop comprises an optical filter optically coupled to said plurality of laser diodes and

having a transmittance substantially periodically changing with wavelength, and means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

13. (ONCE AMENDED) A light source device comprising:

a plurality of laser diodes comprising a reference laser diode;

a first temperature sensor provided in the vicinity of said plurality of laser diodes;

a second temperature sensor provided at a position becoming lower in temperature than a position where said first temperature sensor is provided when driving said plurality of laser diodes;

a control loop for controlling the temperatures of said plurality of laser diodes according to an output from said first temperature sensor to thereby control the oscillation wavelengths of said plurality of laser diodes; and

means for compensating a detected temperature by said first temperature sensor according to a detected temperature by said second temperature sensor and according to a change in temperature control condition for the reference laser diode, wherein the reference laser diode is normally operative only at a lower temperature.

14. (AS ORIGINAL) A light source device according to claim 13, wherein the oscillation wavelengths of said plurality of laser diodes are different from each other, and said plurality of laser diodes are selectively driven.

15. (AS ORIGINAL) A light source device according to claim 13, wherein each of said first and second temperature sensors comprises a thermistor.

16. (AS ORIGINAL) A light source device according to claim 13, wherein said control loop comprises an optical filter optically coupled to said plurality of laser diodes and having a transmittance substantially periodically changing with wavelength, and means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

17. (AS ORIGINAL) A light source device according to claim 16, wherein:

said second temperature sensor is provided in the vicinity of said optical filter;

said light source device further comprising means for controlling the temperature of

said optical filter according to an output from said second temperature sensor so that the temperature of said optical filter is maintained constant.

18. (ONCE AMENDED) A wavelength control device for a light source device having a plurality of laser diodes including a reference laser diode, comprising:

a first temperature sensor provided in the vicinity of said plurality of laser diodes;

a second temperature sensor provided at a position becoming lower in temperature than a position where said first temperature sensor is provided when driving said plurality of laser diodes;

a control loop for controlling the temperatures of said plurality of laser diodes according to an output from said first temperature sensor to thereby control the oscillation wavelengths of said plurality of laser diodes; and

means for compensating a detected temperature by said first temperature sensor according to a detected temperature by said second temperature sensor and according to a change in temperature control condition for the reference laser diode, wherein the reference laser diode is normally operative only at a lower temperature.

19. (AS ORIGINAL) A wavelength control device according to claim 18, wherein each of said first and second temperature sensors comprises a thermistor.

20. (AS ORIGINAL) A wavelength control device according to claim 18, wherein said control loop comprises an optical filter optically coupled to said plurality of laser diodes and having a transmittance substantially periodically changing with wavelength, and means for controlling the temperatures of said plurality of laser diodes so that the intensity of transmitted light through said optical filter becomes constant.

Please ADD the following new claims 21-24:

21. (NEW) A light source device comprising:

a plurality of laser diodes comprising a reference laser diode;

a temperature sensor provided in the vicinity of said plurality of laser diodes;

a control loop controlling the temperatures of said plurality of laser diodes according to an output from said temperature sensor to thereby control the oscillation wavelengths of said plurality of laser diodes; and

a compensator compensating temperature control conditions for said laser diodes other than the reference laser diode selected from said plurality of laser diodes, according to a change in temperature control condition for said reference laser diode, wherein the reference laser diode is normally operative only at a lower temperature.

22. (NEW) A wavelength control device for a light source device having a plurality of laser diodes including a reference laser diode, comprising:

a temperature sensor provided in the vicinity of said plurality of laser diodes;

a control loop controlling the temperatures of said plurality of laser diodes according to an output from said temperature sensor to thereby control the oscillation wavelengths of said plurality of laser diodes; and

a compensator compensating temperature control conditions for said laser diodes other than the reference laser diode selected from said plurality of laser diodes, according to a change in temperature control condition for said reference laser diode wherein the reference laser diode is normally operative only at a lower temperature.

23. (NEW) A light source device comprising:

a plurality of laser diodes comprising a reference laser diode;

a first temperature sensor provided in the vicinity of said plurality of laser diodes;

a second temperature sensor provided at a position becoming lower in temperature than a position where said first temperature sensor is provided when driving said plurality of laser diodes;

a control loop controlling the temperatures of said plurality of laser diodes according to an output from said first temperature sensor to thereby control the oscillation wavelengths of said plurality of laser diodes; and

a compensator compensating a detected temperature by said first temperature sensor according to a detected temperature by said second temperature sensor and according to a change in temperature control condition for the reference laser diode, wherein the reference laser diode is normally operative only at a lower temperature.

24. (NEW) A wavelength control device for a light source device having a plurality of laser diodes including a reference laser diode, comprising:

a first temperature sensor provided in the vicinity of said plurality of laser diodes;

a second temperature sensor provided at a position becoming lower in temperature

than a position where said first temperature sensor is provided when driving said plurality of laser diodes;

a control loop controlling the temperatures of said plurality of laser diodes according to an output from said first temperature sensor to thereby control the oscillation wavelengths of said plurality of laser diodes; and

a compensator compensating a detected temperature by said first temperature sensor according to a detected temperature by said second temperature sensor and according to a change in temperature control condition for the reference laser diode, wherein the reference laser diode is normally operative only at a lower temperature.